VOICE MAIL NOTIFICATION
USING INSTANT MESSAGING

[0001]   The present invention relates generally to the field of voicemail message management and, more particularly, to systems and methods for notifying an instant messaging client of messages received at a voicemail server.

BACKGROUND OF THE INVENTION

[0002]   Most, if not all, telephone users have at least one voice mailbox in which callers can leave voice messages when the users are unavailable to answer calls. Voicemails are typically retrieved by the users in a number of ways. For example, using a telephone set in her office, a voicemail user who returns from a lunch break can hear voicemails that were left at her voice mailbox while she was at lunch. Alternatively, the voicemail user could remotely dial in (e.g., from her home or while she is out of town) to her voice mailbox to retrieve the voicemail messages. Regardless of the method used, the voicemail user must first access her voicemail server to determine whether or not a new message has been stored in her voice mailbox since the last time she checked the mailbox. This can be inconvenient to the user.

[0003]   Accordingly, there is a need for a system and method that would notify the user instantaneously when a voicemail has arrived at her voice mailbox.

SUMMARY OF THE INVENTION

[0004]   The present invention is a system and method that provides enhanced notification of messages received by a voicemail server using instant messaging. In a preferred embodiment, the invention provides an enhanced notification server that works with a voicemail server and an instant messaging presence server to notify an instant messaging client of messages received at the voicemail server. When a new message, e.g., a voicemail, a fax message, or the like, intended for a subscriber of a voice mailbox is received, the voicemail server sends a notification to the enhanced notification server. The enhanced notification server then queries the instant messaging presence server to determine whether the voice mailbox subscriber (who is also the instant messaging client) is available. "Available" means the instant messaging client is online, engaged in an instant messaging session, or otherwise logged on to the instant messaging presence server. If the instant messaging client is available, the enhanced notification server forwards the notification to the instant messaging client. Preferably, forwarding of the notification to the instant messaging client (the voice mailbox subscriber) is accomplished via the instant messaging presence server. The enhanced notification server queues the notification for a later delivery if the instant messaging client is not available.

[0005]   In another preferred embodiment, the invention provides a method for notifying an instant messaging client of messages received by a voicemail server of which the instant messaging client is a voice mailbox subscriber. The methods include the following steps. First, when the voicemail server receives a message, e.g., a voicemail, a fax message, and the like, which is intended for the instant messaging client, the voicemail server sends a notification to an enhanced notification server. The notification indicates that a new

message is available on the voicemail server for retrieval. The enhanced notification

server then queries an instant messaging presence server whether the instant messaging

client is available. If the voice mailbox subscriber (who is also the instant messaging

client) is available, the enhanced notification server forwards the notification to the instant

messaging presence server, which in turns forwards the notification to the instant

messaging client using known instant messaging technologies.

[0006]   In other embodiments, the invention can be adapted to forward the incoming

message to the voice mailbox subscriber via instant messaging.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]   FIG. 1 is a schematic diagram showing the system architecture used in a preferred

embodiment of the invention.

[0008]   FIG. 2 is a schematic diagram summarizing the sequence of activities of a preferred

embodiment that involves a voicemail server, an enhanced notification server, an instant

messaging presence server, and an instant messaging client.

[0009]   FIG. 3 is a flowchart showing exemplary steps involved in implementing a

preferred embodiment of the invention.

[0010]   FIG. 4 is a flowchart showing exemplary steps involved in implementing another

preferred embodiment of the invention.

[0011]   FIG. 5 is a flowchart showing exemplary steps involved in implementing another

preferred embodiment of the invention.

[0012]   FIG. 6 is a flowchart showing exemplary steps involved in implementing another

preferred embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0013]   FIG. 1 is a schematic diagram showing the system architecture used in a preferred

embodiment of the invention. PSTN 110, voicemail (VM) server 120, IP network 140, and

instant messaging (IM) presence server 150 are known elements in the art. As shown in

FIG. 1, PSTN 110 is accessible to users via one or more of wireless telephone 102, fax

machine 104, and wireline telephone 106. Although not indicated in FIG. 1, PSTN 100

can be accessible to other telecommunications devices including, for example, a computer

with a modem, an interactive pager, a personal digital assistant, and the like.

[0014]   As known in the art, voicemail server 120 can receive voicemail, fax messages, and

the like from various sources including, for example, PSTN 110, through link 112.

Voicemail server 120 is in communication with IP network 140 via link 122. Voicemail

server 120 and IP network 140 can communicate with each other using known protocols,

including, for example, TCP/IP.

[0015]   Preferably, voicemail server 120 is adapted to provide traditional voicemail

features as well as new features. Voicemail server 120 preferably includes a profile for

each of its voice mailbox subscribers regarding how notification of incoming messages

should be performed. Preferably, voicemail server 120 is adapted to initiate the

notification by communicating with enhanced notification server 130. Communications

between voicemail server 120 and enhanced notification server 130 can be accomplished

via IP network 140 and links 122 and 142.

[0016]   As known in the art, there are a number of different protocols used by different instant messaging service providers. For example, each of AOL, Yahoo!, and MSN uses its own protocol for its instant messaging service. Accordingly, communication sessions between enhanced notification server 130 and instant messaging presence server 150 is facilitated by the appropriate protocol associated with instant messaging presence 150.

[0017]   Preferably, enhanced notification server 130 includes microprocessor 134. Microprocessor 134 is preferably adapted to provide a number of functionalities. For example, in a preferred embodiment of the invention, enhanced notification server 130 can query instant messaging presence server 150 whether instant messaging client 160 is available. For example, enhanced notification server 130 can query instant messaging presence server 150 whether instant messaging client 160 (voicemail subscriber) has an active instant messaging session. If instant messaging client 160 is available, enhanced notification server 130 forwards the notification to instant messaging client 160. The notification is preferably forwarded via IP network 140 and instant messaging presence server 150 through links 142, 152, and 132.

[0018]   FIG. 2 is a schematic diagram summarizing the sequence of activities involving voicemail server 120, enhanced notification server 130, instant messaging presence server 150, and instant messaging client 160. As shown in FIG. 2, communications between enhanced notification server 130 and instant messaging presence server 150 include multiple queries and responses regarding the presence or availability of instant messaging client 160. Additional details regarding FIG. 2 are explained in conjunction with the description of FIG. 3 below.

[0019]   FIG. 3 is a flowchart showing exemplary steps involved in implementing a

preferred embodiment of the invention.

[0020]   In step 302, an incoming message (e.g., voice, fax, or the like) intended for a voice

mailbox subscriber is received at voicemail server 120.

[0021]   In step 304, voicemail server 120 sends a notification to enhanced notification

server 130. The notification may include a number of attributes associated with the

incoming message including, for example, the date and time on which the incoming

message was received, the identity of the sender of the incoming message, the length (or

size) of the incoming message, and so on. The notification preferably includes a voice

mailbox identification of the voice mailbox subscriber. The voice mailbox identification

can be, for example, a telephone number associated with the voice mailbox subscriber.

[0022]   In step 306, enhanced notification server 130 maps the voice mailbox identification

(VM ID) to an instant messaging identification (IM ID). Note that both the VM ID and the

IM ID belong to a common entity. The common entity is instant messaging client 160 that

is also the voice mailbox subscriber for which the incoming message is intended. The IM

ID can be, for example, an alphanumeric character string associated with instant messaging

client 160.

[0023]   In step 308, enhanced notification server 130 checks the presence status or

availability of instant messaging client 160. Preferably, the IM ID is utilized in this step.

[0024]   In step 310, if it is determined that instant messaging client 160 is present or

available, the process goes to step 312; otherwise, the process goes to step 314.

[0025]   In step 312, the notification is forwarded by enhanced notification server 130 to instant messaging client 160. Preferably, the notification is forwarded via instant messaging presence server 150.

[0026]   In step 314, the notification is queued at enhanced notification server 130 for a later delivery until instant messaging client 160 is available.

[0027]   FIG. 4 is a flowchart showing exemplary steps involved in implementing another preferred embodiment of the invention. In this embodiment, the invention enables a user of the invention, e.g., the voice mailbox subscriber or instant messaging client 160 discussed above, to receive the incoming message along with the notification. In this embodiment, voicemail server 120 is adapted to attach the incoming message to the notification.

[0028]   In step 402, preferences are set. The preferences may include, for example, the user's desire to receive the incoming message in addition to the notification via instant messaging. Preferences are stored in a location that is accessible to voicemail server 120.

[0029]   In step 404, voicemail server 120 receives an incoming message.

[0030]   In step 406, voicemail server 120 reviews the preferences set in step 402.

[0031]   In step 408, if the preferences have been set such a way that the user does not wish to have the incoming message attached to a notification, the process goes to step 412; otherwise, the process goes to step 410.

[0032]   In step 410, voicemail server 120 prepares a notification with the incoming message attached to the notification.

[0033]   In step 412, voicemail server 120 prepares a notification without the incoming message attached to the notification.

[0034]   Following one of steps 410 and 412, steps generally similar to steps 304 through 314 shown in FIG. 3 and discussed above may be used to implement this embodiment.

[0035]   FIG. 5 is a flowchart showing exemplary steps involved in implementing another preferred embodiment of the invention. In this embodiment, the invention enables a user of the invention to receive the incoming message along with the notification. In this embodiment, enhanced notification server 130 is adapted to retrieve the incoming message from voicemail server 120 and attach the incoming message to the notification.

[0036]   In step 502, preferences are set. The preferences may include, for example, the user's desire to receive the incoming message in addition to the notification via instant messaging. Preferences are stored in a location that is accessible to enhanced notification server 130.

[0037]   After step 502 but before step 506, steps generally similar to steps 302 through 304 shown in FIG. 3 and discussed above may be used to implement this invention.

[0038]   In step 506, enhanced notification server 130 receives a notification from voicemail server 120 that an incoming message has been received by voicemail server 120.

[0039]   In step 508, enhanced notification server 130 reviews the preferences set in step 502.

[0040]   In step 510, if the preferences have been set such a way that the user does not wish to have the incoming message attached to the notification via instant messaging, the process goes to steps that are generally similar to steps 306 through 314 shown in FIG. 3 and described above. Otherwise, the process goes to step 512.

[0041]   In step 512, enhanced notification server 130 communicates with voicemail server 120 to retrieve the incoming message.

[0042]　　　　　　In step 514, enhanced notification server 130 attaches the incoming message to the notification.

[0043]　　　　　　Following step 514, steps generally similar to steps 306 through 314 shown in FIG. 3 and discussed above may be used to implement this embodiment.

[0044]　　　　　　FIG. 6 is a flowchart showing exemplary steps involved in implementing another preferred embodiment of the invention. In this embodiment, the invention enables a user of the invention to receive the incoming message via instant messaging after reviewing the notification. In this embodiment, enhanced notification server 130 is adapted to retrieve the incoming message from voicemail server 120 after receiving a respond from the user that the user wishes to receive the incoming message via instant messaging.

[0045]　　　　　　Steps similar to steps 302 through 310 shown in FIG. 3 and discussed above may be used to implement this embodiment.

[0046]　　　　　　Following step 310, in step 612, enhanced notification server 130 forwards the notification to the user. Here, the notification includes a query whether the user wishes to receive the incoming message via instant messaging.

[0047]　　　　　　If in step 614 the user responds with an affirmative answer, the process goes to step 616. Otherwise, the process ends.

[0048]　　　　　　In step 616, enhanced notification server 130 communicates with voicemail server 120 to retrieve the incoming message.

[0049]　　　　　　In step 618, after the incoming message is received from voicemail server 120, enhanced notification server 130 forwards the incoming message to the user via instant messaging.

[0050]   The foregoing disclosure of the preferred embodiments of the present invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many variations and modifications of the embodiments described herein will be obvious to one of ordinary skill in the art in light of the above disclosure. The scope of the invention is to be defined only by the claims appended hereto, and by their equivalents.

[0051]   Further, in describing representative embodiments of the present invention, the specification may have presented the method and/or process of the present invention as a particular sequence of steps. However, to the extent that the method or process does not rely on the particular order of steps set forth herein, the method or process should not be limited to the particular sequence of steps described. As one of ordinary skill in the art would appreciate, other sequences of steps may be possible. Therefore, the particular order of the steps set forth in the specification should not be construed as limitations on the claims. In addition, the claims directed to the method and/or process of the present invention should not be limited to the performance of their steps in the order written, and one skilled in the art can readily appreciate that the sequences may be varied and still remain within the spirit and scope of the present invention.